NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Social Science Community Newsletter

Volume 10, October 2016 ~ Sharing knowledge for better practices

Segmenting Boaters Based on Risk for Aquatic Invasive Species Prevention

By Deborah Seiler, NOAA California Sea Grant

If you can picture highways of boaters happily buzzing among Wisconsin's 10,000 lakes for summer fun, then you can understand why preventing the spread of aquatic invasive species (AIS) is a quintessential collective action problem. Engaging these boaters in AIS prevention – a goal of NOAA's Sea Grant programs – is also a risk communication problem.

Invasive quagga mussel from Lake Michigan
Credit: NOAA

With funding from the Great Lakes Restoration Initiative, the Wisconsin Department of Natural Resources (or WDNR, my employer prior to joining Sea Grant), reached out to communications researchers at the University of Wisconsin-Madison for help.

Social marketing expert Professor Bret Shaw and his students worked with WDNR staff to design a mail survey that was sent to a random sample of 1,500 registered Wisconsin boaters. The survey had a 58 percent response rate.

Segmenting boaters, continues on page 2

Oyster Restoration in Matagorda Bay, Texas

By Stuart Carlton, NOAA Texas Sea Grant

Social scientists from Texas Sea Grant partnered with The Nature Conservancy recently to evaluate the newly completed Half Moon Reef oyster reef restoration in Matagorda Bay, Texas. Half Moon Reef is an historical oyster reef. The original reef was large, measuring as much as 494 acres in 1905. However, by the late 20th century, the Reef had essentially disappeared due to a combination of dredging, harvesting, and changes in water flow.

Oyster restoration, continues on page 4

Call for Participation in a Data Visualization Community of Practice

Data visualization allows us to identify patterns, trends, and correlations that might otherwise go unnoticed.

We're looking for people to join the Data Visualization Community of Practice to advance the art and science of displaying data.

Interested in participating? Send a message to: prss.socsci@noaa.gov

Upcoming Events

November 1, 2016: "US Virgin Island's and Puerto Rico's Maritime Economy" Seminar
www.nodc.noaa.gov/seminars/

December 1, 2016: "Does NOAA Need Research?" Seminar
www.nodc.noaa.gov/seminars/

Dec. 5-9, 2016: A Community of Ecosystem Services (ACES) Conference, Jacksonville, FL
www.conference.ifas.ufl.edu/aces/

Ongoing: Sustainable Development Goals Academy—Courses taught by a global faculty of experts on various topics related to sustainable development
https://courses.sdgacademy.org/

Segmenting boaters, continued from page 1

This survey was the basis for a recent publication (Witzling, Shaw, & Seiler, 2016) that segmented boaters who differ in transience level, a proxy for risk.

Transience in this context refers to how frequently boaters are moving around between waterbodies. Boaters who stay on only one lake per season do not risk spreading AIS (no transience). Those who visit multiple lakes and rivers pose a higher risk, particularly if it's within a five-day period (high transience). Five days is a rule of thumb for the amount of time it takes for most AIS to die and dry. Segmenting the respondents allowed the researchers to learn more about their highest-risk audience, the highly transient group.

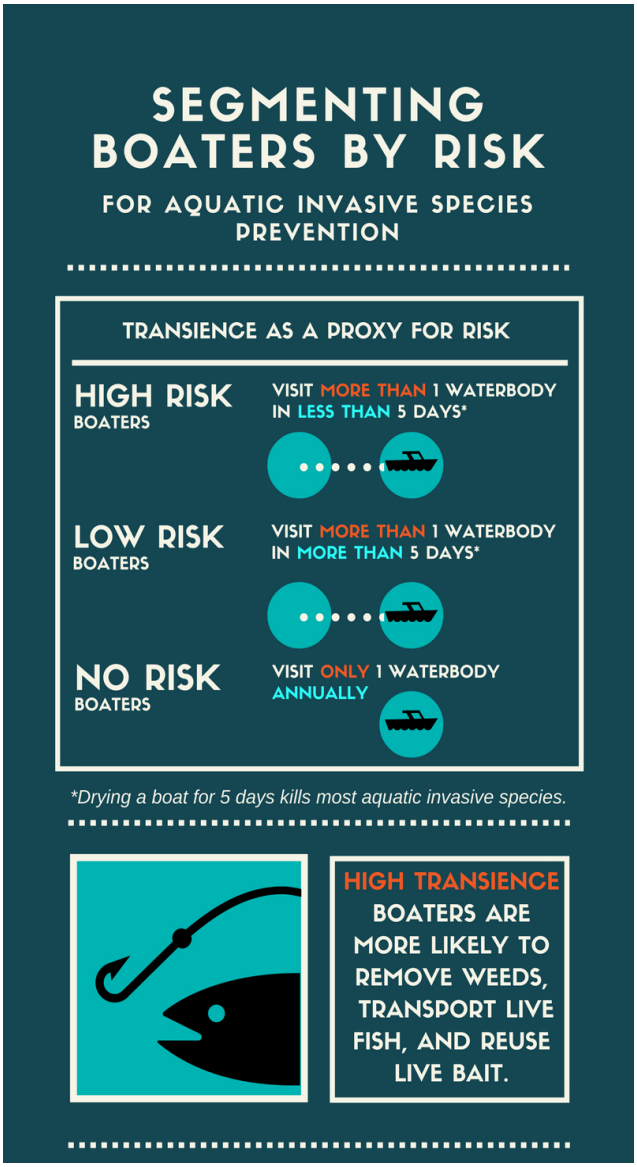
Encouragingly, results showed that all groups had generally high scores for the attitudes, norms, and behavioral perceptions needed to perform AIS prevention steps. Also, high transience boaters scored the highest on objective knowledge.

Highly transient boaters were more likely to get their information on AIS from lake associations or in conversation with friends and family, making these networks promising avenues for outreach. Another outreach recommendation is to focus on signage, because for all groups, signs with AIS rules posted at boat landings were the most commonly cited source of information.

The analysis also lead to recommendations about two risk behaviors that managers should work on with high transience boaters. They are more likely to reuse live bait on different water bodies and add lake water to their bait containers. If these behaviors are done in tandem, they risk spreading waterborne disease or organisms. High transience boaters are also more likely to transport their catch in water, which is not permitted under Wisconsin law. An "Ice Your Catch" campaign in Wisconsin is attempting to address this.

For this study, segmenting a target audience based on risk yielded differences in what they know, do, and how they receive information, all of which can guide effective outreach. It's a promising approach for NOAA and Sea Grant communicators to reach their priority audience with the right message, through the right medium.

For more information on this project, contact Deborah Seiler at dseiler@ucsd.edu



Source: Witzling, Shaw, & Seiler, 2016[1]

Did You Know?

Estimated damage and control costs of aquatic and terrestrial invasive species in the U.S. amount to more than $137 billion annually.

This is more than the combined total of all other natural disasters.[2]

Communicating the Right Words at the Right Time

By Dr. Timothy L. Sellnow & Dr. Deanna D. Sellnow, University of Central Florida

"The right words at the right time save lives." This adage is at once the inspiration and challenge for those who design and share risk and crisis messages. We have dedicated the last two decades of our lives to building a generalizable model that is easy for communication practitioners to use for meeting the challenge of effectively communicating risk and crisis messages.

Our four step IDEA model aids practitioners in aligning key information in risk and crisis messages that fits with a variety of communication channels and contexts ranging from formal press conferences to brief messages on social media. The four components of the model are internalization (who is in danger), distribution (choosing the best communication channel/s), explanation (what is happening and why it is a risk), and action (what specific actions do you want the listener to take). After years of case study analysis, message testing experiments, and field trials, we are convinced that succinct messages attending to each of these four factors constitute the most compelling risk and crisis messages.

The IDEA Model
Credit: Drs. Tim and Deanna Sellnow[3]

Internalization answers questions such as: Am I at risk? Is my family at risk? When is the risk the greatest? Who else is at risk? Thus, the model begins by creating a clear awareness of who is in harm's way and when.

Distribution is increasingly complicated by new technology. Traditional forms of communication such as press releases, press conferences, and television advertising are still effective with some audiences. A growing segment of the population, however, relies solely on social media or news sources adapted to the Internet for their information. As we consider who we want to receive our messages, we must consider how they choose to receive their information. In most cases, the same message can be distributed through multiple channels.

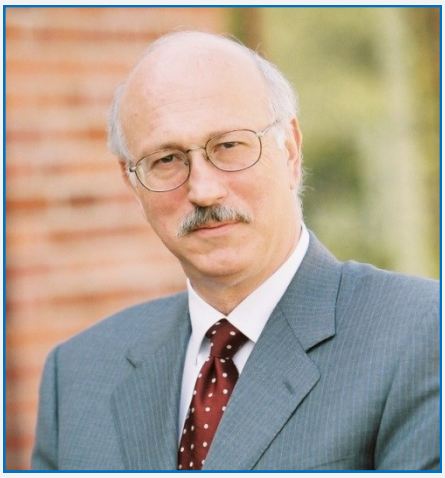
Explanation comes most easily to many practitioners. Experts in all fields have tremendous knowledge at their disposal. Public audiences, however, do not share the same knowledge or enthusiasm. We find that audiences want to know what is happening and why it is happening. They accept that they are not likely to comprehend much of the science behind the risk, but they do want to know the basics. Our goal is to give enough information to remain credible, but not to overwhelm our audience.

Finally, action statements are essential. We should never assume that our audiences will know precisely how to respond to the risks we describe. The action steps may seem obvious to us, but we find that audiences want confirmation and reassurance that they are taking the best steps toward reducing their risk. We should never publicly identify a risk without giving our audiences something meaningful they can do to reduce their vulnerability and the vulnerability of their families.

Communicating effective risk messages will continue to be a major challenge for practitioners. Through abundant research, we are convinced that employing the IDEA model can help practitioners share the right words at the right time, and, ultimately, save lives.

For more information, contact Dr. Tim Sellnow (timothy.sellnow@ucf.edu) or Dr. Deanna Sellnow (deanna.sellnow@ucf.edu)

PRSS Hosts Seminar on Economic Consequence Analysis Tool for Natural Disasters



Dr. Adam Rose
Credit: Dr. Adam Rose

In July, the Performance, Risk, and Social Office hosted Dr. Adam Rose who presented a seminar on the Economic Consequences Analysis Tool (E-CAT) at NOAA's Silver Spring, Maryland Campus.

Dr. Rose explained the E-CAT framework, its theoretical and empirical underpinnings, and illustrated its derivation and use for the cases of an oil spill and a flood disaster. E-CAT was developed for policymakers and analysts who need rapid estimates of the economic impacts of natural disasters, technological accidents, and terrorist attacks. It involves a 7-step process and is programmed in Excel and Visual Basic to facilitate its use.

Dr. Rose is a Research Professor at the University of Southern California (USC) Sol Price School of Public Policy, and a faculty affiliate of USC's Center for Risk and Economic Analysis of Terrorism Events (CREATE). His primary research interest is the economics of disasters, including natural hazards, terrorism and technological accidents.

View the seminar at: www.lib.noaa.gov/about/news/Rose_072116.pptx (PowerPoint presentation with recorded audio)

Oyster restoration, continued from page 1

The research team (Dr. Stuart Carlton, Dr. Andrew Ropicki, and Mr. Bill Balboa— all from Texas Sea Grant) used a mixed-mode survey of recreational anglers and fishing guides to analyze angler awareness of the reef, angler use of and satisfaction with the reef, demographics and motivations of reef anglers, and the economic impact of the reef.

The results showed that the restoration effort has been highly successful. On average, both guides and anglers agree that the fishing at Half Moon Reef is excellent, that the Texas coast needs more restoration projects like Half Moon Reef, and that more such environmental restoration projects are critical to the future of the Texas coast. Furthermore, the results showed that economic impacts from the recreational fishing industry due to the reef restoration include an additional $691,000 to Texas' GDP and $1.273 million in economic activity.

"The success of Half Moon Reef has created a blueprint for coastal restoration across the region and proven that investments in habitat restoration can be great for nature and people" said Dr. Christine Shepard, Director of Science for The Nature Conservancy's Gulf of Mexico Program.

What is exceptional about this project is the partnership between The Nature Conservancy and Texas Sea Grant to evaluate the social dimensions of the restoration project. Often, these sorts of projects are only evaluated on ecological grounds. By looking at the social dimensions, the project showed that the reef has already impacted the local fishing economy significantly.

Sample collection at Matagorda Bay, Texas before reef construction
Credit: Jerod Foster for The Nature Conservancy

For more information on the study, contact me at stuartcarlton@tamu.edu.

Social Scientist Spotlight: Jarrod Loerzel, Hollings Marine Laboratory

Photo Courtesy of Jarrod Loerzel

What Jarrod Does:

Jarrod leads and is part of a number of social science projects at the Hollings Marine Laboratory in Charleston South Carolina, which is part of NOAA's National Centers for Coastal Ocean Science.

He is also part of the team that develops socioeconomic surveys for the National Coral Reef Monitoring Project (NCRMP). The surveys asks residents of the seven U.S. coral reef jurisdictions about their knowledge, attitudes, and perceptions as well as perceived threats, conditions, and the management of their local coral reefs.

His Background:

Jarrod holds joint B.S. degrees in Political Science, Environmental Studies, and Geographic Information Systems (GIS) from Northern Illinois University. He also holds an M.S. in Environmental Studies and a Master's in Public Administration from the College of Charleston in South Carolina. For his graduate work, Jarrod used participatory GIS methods to understand how people value the ACE Basin National Estuarine Research Reserve. He showed the geospatial intersections of social values among boaters, anglers, and hunters by overlaying survey data from those user groups with environmental GIS data.

An Important Accomplishment:

Getting a three -year, participatory GIS research project funded was a big accomplishment. The project involved working through the Office of Management and Budget approval process to conduct an online and in-person survey, building rapport with the NEERs to use selected locations as research sites, and analyzing the interaction of social and environmental data layers. But, helping to build the socioeconomic component of the NCRMP was no small feat!

Highlights and Lowlights of Working in Social Science:

One highlight is the fact that social science has taken a more prominent role and is increasingly viewed as a useful tool within NOAA, in general, and NCCOS, in particular. The opportunity for public engagement and getting to explain the importance of social science are additional highlights as is the chance to help connect the dots for people who don't understand the utility of social science. With respect to lowlights, there is a perception that anyone can "do" social science. For example, putting together a survey is harder than people think as it is more than just asking questions

Biggest Misconceptions about Social Science:

The biggest misconception is the perception that social science does not use the scientific method; there is a general lack of appreciation for the full suite of methods utilized by social scientists. Social science is more than just collecting primary data through the use of surveys. Many times social science work involves the use of secondary data. For example, combining demographic data, details of building structures, and housing records with data on floods or sea level rise can be used to identify environmentally vulnerable populations.

His Vision for Social Science at NOAA:

Jarrod believes that the integration of the social sciences across all of NOAA's scientific disciplines will be commonplace within the agency as it moves forward. He also believes that NOAA will continue to move toward making greater use of web-based and online methods for primary data collection, especially in terms of participatory GIS and citizen science. However, he recognizes that using such data will require more oversight, additional rules, and a solid framework.

A Fun Fact About Jarrod :

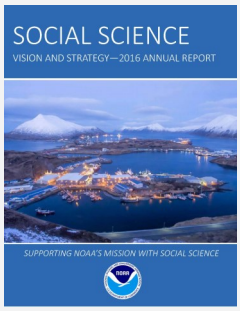
Jarrod and his wife used to own a 5-acre plot of land in central Illinois where they grew organic produce and flowers to supply Chicago-area restaurants; restaurants owned by Rick Bayless and Paul Kahan were among his clients. He plays Blues harmonica and enjoys building, repairing, and designing tube amplifiers.

Reach Jarrod at jarrod.loerzel@noaa.gov

News from the NOAA Social Science Committee

2016 Annual Report Released

The 2016 Annual Report on social science at NOAA was released recently. This is the first update since the release of the Vision *and Strategy: Supporting NOAA's Mission with Social Science* in July 2015. The *Vision and Strategy* was created to institutionalize social science efforts across NOAA.



View the report at: www.performance.noaa.gov/wp-content/uploads/ssvandsannualreport-final.pdf

SSC on Chief Economist's Website

The Social Science Committee (SSC) now has a presence on the website of the NOAA Chief Economist, who chairs the SSC. For more on current SSC membership, and other social science work at NOAA, visit: www.performance.noaa.gov/economics/

PRSS Welcomes a New Economist

Credit: Dr. Poudel

Dr. Rajendra Poudel joined the Performance, Risk, and Social Science Office this month where his work will include advancing ecosystem services.

He brings ten years of field-based experience in community development, participatory natural resource management in protected areas, sustainable rural tourism development, and ecosystem services valuation in Nepal and the U.S.

Dr. Poudel holds a Ph.D. in Forest Resources Science with an emphasis on forest economics from West Virginia University.

Learn more about him at: www.researchgate.net/profile/Rajendra_Poudel3

References

[1]Witzling, L., Shaw, B., & Seiler, D. 2016. Segmenting boaters based on level of transience: Outreach and policy implications for the prevention of aquatic invasive species. Biological Invasions (2016). DOI:10.1007/s10530-016-1254-7.

[2]NOAA Fisheries Service: Aquatic Invasive Species — Quick Facts. Available from www.habitat.noaa.gov/pdf/best_management_practices/fact_sheets/Aquatic%20Invasive%20Species%20Facts.pdf

[3]Sellnow, T. and D. Sellnow. 2013. The role of Instructional Risk Messages in Communicating about Food Safety. Food Insight: Current Topics in Food Safety and Nutrition, International Food Information Council, p.3.

Recent Social Science Publications

* Morrow, B. H., J.K Lazo, J. Rhome and J. Feyen. 2015. Improving storm surge risk communication: Stakeholder perspectives. Bulletin of the American Meteorological Society, 96(1), 35-48.
* Brinson, A.A. and K. Wallmo. 2015. Stakeholder attitudes toward ecosystem-based fisheries management. Marine Fisheries Review 77(3): 17-30.
* Szymkowiak, M. and A. H. Himes-Cornell. 2015. Towards individual-owned and owner-operated fleets in the Alaska Halibut and Sablefish IFQ program. Maritime Studies 14(1): 1-19. DOI: 10.1186/s40152-015-0037-6.

Have a publication to share?

Help us populate the list of social science publications by sending the citation to prss.socsci@noaa.gov

We would like your input. Please send us ideas for stories, articles, or social science work that we should highlight. You can contact us at: prss.socsci@noaa.gov